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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,752	03/23/2004	Vernon E. Kauffman	SPE23	2751
23508	7590	02/03/2006	EXAMINER	
LUNDEEN & DICKINSON, LLP PO BOX 131144 HOUSTON, TX 77219-1144			FULLER, ROBERT EDWARD	
			ART UNIT	PAPER NUMBER
			3672	
DATE MAILED: 02/03/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/708,752	KAUFFMAN ET AL.	
	Examiner	Art Unit	
	Robert E. Fuller	3672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 9, 10 and 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/23/2004</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because: It was not executed in accordance with either 37 CFR 1.66 or 1.68. “/s/” is not a proper signature for an electronically filed oath or declaration. Examiner suggests that each signature be changed to --/inventor's full name/--. For example, --/Vernon E. Kauffman/--.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the hardened insert (claim 6), the seals disposed on the hardened insert (claim 7), and the two bearing types (claims 11 and 12) must be clearly shown on the drawings. Furthermore, the backup ring (item 44) must be shown as being constructed as part of the bearing assembly, as described in claim 10. Lastly, the socket bushing (item 40) must be shown as being integral to the retainer sub, as described in claim 14. The aforementioned feature(s) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to because section lines are not shown on the interior lip of the retainer nut (items 52 and 53). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary

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to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: In line 5 of paragraph 0009 of the detailed description, the swivel mandrel is referred to without its corresponding reference number. Examiner suggests that the number --30-- be inserted after the phrase "a swivel mandrel." Also, in line 9 of paragraph 0010 of the detailed description, a word is missing. Examiner suggests that the word --be-- be inserted in between "may" and "designed."

Appropriate correction is required.

5. The disclosure is objected to because of the following informalities: The specification does not mention the socket bushing being integral to the retainer sub, as described in claim 14.

Appropriate correction is required.

Claim Objections

6. Claims 2-6 are objected to because of the following informalities: The preambles for the dependent claims should be consistent with the preamble of the independent

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claim. Examiner suggests that the preambles of claims 2-6 be changed to --The inline swivel of claim 1--. Appropriate correction is required.

7. Claim 7 is objected to because of the following informalities: The preamble of claim 7 is not proper. Examiner suggests that the preamble to claim 7 be rewritten as --the inline swivel of claim 6 further comprising--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, the "bearing" is referred to as "having an upper surface conforming to the rounded head of the tubular swivel mandrel." However, in figures 1 and 2, the bearing (item 60) appears to have a purely cylindrical shape, and appears to sit lower along the swivel mandrel so that it does not come into contact with the head of the swivel mandrel at all. In claim 2, the "socket bushing" is described as "providing a profile conforming to the rounded head of the tubular swivel mandrel," which seems to be consistent with figures 1 and 2. Claim 1 must be revised to be consistent with the drawings in order to clearly point out what the applicant is claiming as his invention.

Claim Rejections - 35 USC § 102

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10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1, 2, 8, 15, and 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Warren (US 5,423,389).

With regard to claim 1, Warren discloses a curved drilling apparatus having the following features:

- a. A tubular retainer sub (figure 5c, item 264)
- b. A swivel mandrel having an enlarged rounded head (figure 5c, item 262)
- c. A retainer nut (figure 5c, item 290)
- d. A bearing (figure 5c, item 260)

With regard to claim 2, Warren further teaches a socket bushing providing a profile conforming to the rounded head of the swivel mandrel (figure 5c, item 274).

With regard to claim 8, Warren discloses a curved drilling apparatus having the following features:

- a. A retainer sub (figure 5c, item 264)
- b. A socket bushing having a substantially spherical bushing surface (figure 5c, item 274)
- c. A swivel mandrel having a spherical distal end (figure 5c, item 262)
- d. A bearing assembly configured to resist movement of the end of the swivel mandrel away from the socket bushing (figure 5c, items 260 and 278)

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- e. A retainer nut configured to compress the bearing assembly (figure 5c, item 290)

With regard to claim 15, Warren teaches a curved drilling apparatus for use in a drill string. "The function of the flexible or ball joint assembly is to allow the drill bit to tilt sufficiently in the borehole to drill a short radius curve" (Warren, column 13, line 7).

With regard to claim 17, the retainer nut (figure 5c, item 290) of Warren's device limits the axial deviation of the swivel mandrel (figure 5c, item 262) with respect to the retainer sub (figure 5c, item 264).

With regard to claim 18, Warren further discloses a plurality of seals (figure 5c, item 280; column 14, line 52) between the socket bushing (figure 5c, item 274) and the receptacle (figure 5c, item 268).

With regard to claim 19, Warren further discloses a retainer nut (figure 5c, item 290) which is threadably engaged upon the retainer sub (figure 5c, item 264).

With regard to claim 20, the assembly of the Warren device would necessarily contain all of the steps set forth in claim 20.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 4, 5, 13, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warren in view of Walton (US 3,663,043).

With regard to claim 4, Warren discloses all the limitations of the above claims, except for the bearings being lubricated by injection of lubricant from a lower edge of the retainer nut.

Walton discloses a ball and socket joint for use in pipelines. Walton's device provides a fitting (figure 1, item 20) within the retainer nut (figure 1, item 15) where grease can be injected into the ball and socket assembly.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the grease fitting of Walton, with the retainer nut of Warren, in order to have provided a convenient and necessary means of lubrication for the vital moving parts within the swivel joint assembly.

With regard to claim 5, Warren discloses all the limitations of the above claims, except for the hemispherical surface of the swivel mandrel having one or more seals.

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Walton discloses a ball and socket joint for use in pipelines. Walton further teaches that the swivel mandrel (figure 1, item 10) contains seals (figure 1, item 28) on its hemispherical surface.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the seals of Walton within the swivel mandrel of Warren in order to prevent “the flow of fluid out of or into the tubular ball and socket members, i.e., between the inside and outside of the members” (Walton, column 2, line 40).

With regard to claim 13, Warren discloses all of the limitations of the above claims, except for the retainer nut including a hydraulic port configured to communicate with the bearing assembly.

Walton discloses a ball and socket joint for use in pipelines. Walton further teaches a hydraulic port (figure 1, item 20) and passageway (figure 1, item 21) within the retainer nut (figure 1, item 15). The hydraulic port is used to deliver grease into the bearing assembly.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the hydraulic port and passageway of Walton, within the retainer nut of Warren, to have provided a convenient and necessary means of lubrication for the vital moving parts within the swivel joint assembly.

With regard to claim 16, Warren discloses all of the limitations of the above claims, except for the swivel joint being used as part of a pipeline string.

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Walton discloses a ball and socket joint, similar to Warren's device, for use as part of a pipeline string.

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have used the swivel joint of Warren within a pipeline string, as taught by Walton, in order to have provided a means of sealingly connecting two tubular members together while still allowing for liquid flow through those members.

14. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Warren in view of Biggs (US 4,648,469).

Warren discloses all of the limitations of the above claims, except for a hardened insert being retained in a lower radial portion of the retainer sub.

Biggs teaches a drill string ball joint for alleviating vortex shedding stress problems when the string is placed in a current. Biggs further teaches the use of hardened inserts, or "friction reducers," (figure 5, item 29) "having an internal curvature that matches the exterior, or external, curvature of the [swivel mandrel]" (figure 5, item 27). "Typical friction reducers may comprise silicones, silicone rubbers, greases or even lubricant impregnated solids such as brass or the like" (column 3, line 21).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have included the hardened inserts of Biggs, within the retainer sub of Warren, in order to have provided a means for holding "the weight that will be imposed on the ball joint without too great a friction," (Biggs, column 3, line 24) which would have thereby increased the longevity of the moving parts within the swivel joint.

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15. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warren in view of Schoeffler (US 4,732,223).

With regard to claims 11 and 12, Warren discloses all the limitations of the above claims, except for the bearing assembly including a thrust bearing or a journal bearing.

Schoeffler describes a directional drilling tool with a swivel joint similar to that of Warren. Schoeffler further teaches a thrust bearing (figure 2, item 24) disposed on the ball end of the swivel mandrel (figure 2, item 32).

It would have been considered obvious to one of ordinary skill in the art, at the time the invention was made, to have replaced the ball bearings of Warren with the thrust bearing of Schoeffler, in order to have provided additional load-bearing support, while still allowing for rotational movement of the rounded head of the swivel mandrel. Furthermore, the applicant has not established the criticality of choosing journal bearings over thrust bearings, which is evidenced by the failure to show both types of bearings in the drawings (see drawing objections). Therefore, the substitution of journal bearings for thrust bearings would have been within the level of ordinary skill in the art.

Allowable Subject Matter

16. Claims 3, 7, 9, 10, and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. These references further teach the state of the art with respect to tubular swivel joints.

US 3,156,310 – Frisby

US 4,139,221 – Reneau

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert E. Fuller whose telephone number is 571-272-0419. The examiner can normally be reached Monday thru Friday from 8:00 AM - 5:30 PM. The examiner is normally out of the office every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David J. Bagnell can be reached on 571-272-6999. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

01/31/2006
REF


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